

REMARKS

By this paper, Claims 1-5, 11, 15, and 16 have been amended, and new Claims 19 and 20 has been added. Support for the amendments to Claims 1-5, 11, 15, and 16 and for new Claims 19 and 20 can be found at least in paragraphs [0006], [0022], and [0035] of the specification, as well as elsewhere throughout the specification and claims as originally filed. No new matter has been added by this amendment. Claims 1-20 are pending and presented for examination.

Discussion of Rejection of Claims Under 35 U.S.C. § 102(b)

The Examiner has rejected Claims 1, 2, 4-6, 9-11 and 14-16 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 3,951,152 to Crandell et al. In rejecting these claims, the Examiner stated that "Crandell et al. disclose a cryogenic surgical probe and method of use, the probe comprising a probe tip having inner/pore diameter of about 0.004 inches, a cryogenic gas supply canister 18, and replaceable filter 74 disposed with the probe as claimed." Applicant respectfully submits that pending Claims 1, 2, 4-6, 9-11 and 14-16 are not anticipated by Crandell.

Crandell is directed to a cryogenic probe having a closed probe tip 14a which can be quickly cooled by a refrigerant. A cylindrical metal cartridge 18 containing a supply of refrigerant is sealed with a plug 22. When a push button 16 is depressed, a plunger 52 pushes the plug into the cartridge until the seal between the plug and the cartridge is broken, allowing the refrigerant to flow out of the cartridge. The released refrigerant evaporates within closed probe tip 14a, cooling the probe tip 14a.

In contrast, amended Claim 1 recites an apparatus for cryogenic treatments comprising a microapplicator having a bore diameter of 20 to 120 μm configured to provide a partly gaseous and partly liquid jet when supplied with a flow of a liquefied gas, a removable cartridge for supplying said liquefied gas; and a replaceable filter for eliminating foreign particles, wherein the filter and the cartridge are configured such that replacement of the cartridge with a new cartridge automatically leads to the replacement of the filter with a new filter.

Applicant respectfully submits that the apparatus of amended Claim 1 differs from the probe of Crandell in that it comprises a microapplicator configured to provide a partly gaseous and partly liquid jet when supplied with a flow of liquefied gas. Such a jet can be used to

directly cool the tissue of a patient using the cryogenic fluid, in contrast to the conductive cooling of the closed probe tip of Crandell, in which the cryogenic fluid never makes contact with the patient. By supplying a jet which can directly contact the patient, deeper cooling can be achieved.

In addition, Applicant respectfully submits that Crandell does not teach a removable cartridge for supplying said liquefied gas, and a replaceable filter for eliminating foreign particles, wherein the filter and the cartridge are configured such that replacement of the cartridge with a new cartridge automatically leads to the replacement of the filter with a new filter, as recited in amended Claim 1.

As an initial matter, although the Examiner has described the filter of Crandell as replaceable, Applicant respectfully submits that there is no teaching in Crandell that the filter can be replaced. Rather, the filter plug 72 of Crandell is inserted within the bore 64 of plunger tube 54. Thus, Applicant respectfully submits that Crandell does not teach a replaceable filter.

Furthermore, Crandell does not teach that filter and the cartridge are configured such that replacement of the cartridge with a new cartridge automatically leads to the replacement of the filter with a new filter, as recited in amended Claim 1. Although Crandell is primarily concerned with disposable probes, Crandell does describe that it may be preferable to re-use the probe. Crandell describes that in order to do so, housing sections would be taken apart, and the cartridge 18 pulled away from the plunger 52, and a new capsule 18 inserted onto the plunger. Applicants respectfully note that the filter plug 74 of Crandell is located within the plunger 52. Thus, Crandell specifically teaches replacement of a cartridge in a way which leaves the original filter plug 52 intact, and does not automatically lead to the replacement of the filter when the cartridge 18 is replaced.

The automatic replacement of the filter recited in amended Claim 1 is particularly advantageous when the cryogenic fluid is applied directly to the patient via a jet, as steady flow of the cryogenic fluid is necessary to ensure uniform and reliable cooling. If the filter were not replaced when the cartridges were replaced, the filter could become obstructed over time, and the size and speed of the jet could change. This would not have been a significant concern in Crandell, which is primarily directed to one-time use disposable probes, and which does not

teach a jet which could come into contact with the patient. Thus, Applicant respectfully submits that Claim 1 is not anticipated by Crandell

Claim 9 recites a process for interrupting a gaseous flow in a medical device, comprising providing a cylindrical valve comprising a transverse pipe which permits gas flow from a cartridge to a microapplicator, said valve being perpendicular to the direction of the gas flow and providing a mechanical or electrical actuator to permit upward and downward movement of said valve and providing O-rings for imperviousness. In contrast, Crandell teaches that a plunger 52 aligned with the cylinder can be used to press in a plug 22 or pierce a seal to allow flow of the refrigerant out of the cartridge. Applicant respectfully submits that the process of Claim 9 is not taught by Crandell.

As Claims 2, 4-6, 10, 11, and 14-16 either depend from or incorporate the limitations of either Claim 1 or Claim 9, Applicant respectfully submits that these claims are also not anticipated by Crandell for at least the reasons discussed above with respect to Claims 1 and 9, in addition to providing further patentable distinction.

Discussion of Rejection of Claims Under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 1-7, and 9-7 under 35 U.S.C. § 102(b) as obvious over Crandell et al. Applicant respectfully submits that Crandell fails to teach or suggest every limitation or amended Claim 1 or Claim 9, for the reasons discussed above. Furthermore Applicant respectfully submits that there would have been no reason to modify the device of Crandell to include the limitations not taught or suggested by Crandell.

As discussed above, there would be no reason to modify Crandell to include a microapplicator configured to provide a partly gaseous and partly liquid jet when supplied with a flow of liquefied gas, as the device of Crandell comprises a closed probe tip.

There would also have been no reason to modify Crandell to include providing a cylindrical valve comprising a transverse pipe which permits gas flow from a cartridge to a microapplicator, said valve being perpendicular to the direction of the gas flow and providing a mechanical or electrical actuator to permit upward and downward movement of said valve, as Crandell is designed to function by using a plunger aligned with the flow path of the gas to push in or pierce the cartridge seal.

Thus, Applicant respectfully submits that Claims 1 and 9 are not obvious in view of Crandell. As Claims 2-7 and 10-18 either depend from or incorporate the limitations of either Claim 1 or Claim 9, Applicant respectfully submits that these claims are also not obvious in view of Crandell for at least the reasons discussed above with respect to Claims 1 and 9, in addition to providing further patentable distinction.

Discussion of Objected-To Claims

Applicant thanks the Examiner for the indication that Claim 8 would be allowable if rewritten in independent form.

Discussion of New Claims

By this paper, new Claims 19 and 20 have been added. Support for new Claim 9 can be found at least in Claim 1 as originally filed, as well as elsewhere throughout the specification and claims as originally filed. Similarly, support for new Claim 20 can be found in paragraph [0035] as originally filed, as well as elsewhere throughout the specification and claims as originally filed. As Claims 19 and 20 depend from amended Claim 1, Applicant respectfully submits that Claims 19 and 20 are patentable for at least the reasons discussed above with respect to Claim 1, in addition to providing further patentable distinction.

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Conclusion

Applicant respectfully submits that the above amendments and arguments have fully addressed all outstanding rejections of the claims, and respectfully requests the withdrawal of the same and the allowance of the pending claims.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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